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ABSTRACT

An analysis of the position of the Republic of the Philippines with respect to the contributions of education to manpower development and other areas of concern to strategy planners is examined in this paper. Three major sections cover: (1) education as a force in economic development, (2) economics of education, and (3) contributions of education to development. The dilemma of achieving quality education in the face of increased enrollments is discussed in terms of national income, population factors, and educational expenditures. Commentary on elementary, secondary, and higher education is clarified by the use of charts and tables. A strategy for development focuses on basic issues which the Filipinos will need to consider in their planning. (RL)

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CONTRIBUTION OF EDUCATION to the DEVELOPMENT OF HUMAN RESOURCES in the REPUBLIC OF THE PHILIPPINES

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PART I

EDUCATION AS A FORCE IN ECONOMIC DEVELOPMENT

One of the greatest areas of concern for most developmental planners is the contribution made by the educational system of the nation to its development. Many authorities have concerned themselves with the impact of education upon economic development. Studies are being made in several countries of the world to determine how the school systems of those nations can help their economic growth.

The concept that education is an economic tool is not particularly new or unique. What is new is that nations are now including education as such in a total national strategy for development. This latter fact requires some elaboration. Since the beginning societies have developed schools for two purposes. The first of these is the perpetuation of the society itself, and it is to achieve this purpose that mores, customs, history, anthems, and pledges are taught. The second purpose is the improvement of the society itself. It is obvious that through the years the first of these responsibilities has fallen to the elementary school while the second has been the role of secondary and higher education. Today, we find nations examining all levels of education to assess their contribution to economic development. If, it is reasoned, secondary and higher education make a greater contribution to economic development than does elementary education, then, let us increase the amount of secondary education of our people. But, it is asked, how much shall it be increased, and in which direction? Shall this expansion be at the expense of other levels of education? Can this re-emphasis neglect social or political goals? This is the point at which the educational economist enters the picture and studies are begun.

A recent contribution to the field of literature on the subject of education and manpower development is the book entitled *Education, Manpower and Economic Growth* by Frederick Harbison and Charles A. Myers.[1] This volume represents a vast

[1] Frederick Harbison and Charles A. Myers, *Education, Manpower and Economic Growth*. McGraw-Hill Book Company, New York, 1964.

amount of statistical work and analysis. The authors have studied the economic structure and school statistics of seventy-five countries of the world. They have classified these countries into four groups of economic development—underdeveloped, partially developed, semi-advanced and advanced—and have proposed educational strategies for each level. The Republic of the Philippines was not one of the countries that was studied. It is the intent of the present article to review briefly some of the work of Harbison and Myers, to relate the present system of education in the Philippines to it, and to conclude with areas of concern for the development of an educational strategy for the nation. Of course, with the limitations presented by the actual situation, wherein no total manpower needs study has been accomplished for the economy as a whole, and with the tendency for educational systems to be resistant to change, the findings and recommendations of this effort will be only as valid as history proves them to be. But at least it is a beginning.

Harbison and Myers pointed out that the major problems of human resource development fall into two broad categories.[3]

> "(1) Those related to shortages of 'high level' manpower with critical skills and competence, and (2) those related to redundant or under utilized manpower".

They go on to say that the "objective of a strategy of human re source development is to build the skills and knowledge required for economic, social, cultural, and political growth and to provide avenues of participation in the creation of a better society for all who seek them." They finally assert their belief that school systems can provide for the social and cultural needs of the society and still provide for the needs of the growing economy.

At given stages of development, certain occupations and human endeavors can be classified as "strategic human capital." These classifications are bound to be arbitrary, but are necessary for

[3] Ibid., p. 15

cation equip a man for the continuous seeking of new solutions."

Mr. Gardner indicates the need for educational systems in less developed economics that will inspire the innovative thinking so necessary to span the decades of evolutionary development experienced by advanced nations.

Max F. Milliken has also stressed the need for education for innovation.[8] He states that one half of the growth of the economy of the U.S. can be attributed to "physical inputs" of which part is attributable to education and part to human innovation.

"It is my conviction that a similar level of innovative activity is a necessary condition for development in the underdeveloped world and that education should be more explicitly designed to promote this."

He goes on to enumerate and discuss the five areas of concern for the development of education in the underdeveloped countries:

1. The need for more economical educational methods.
2. New needs and methods of language instruction.
3. Education to change attitudes toward nature.
4. Education for problem solving.
5. Education as a search and selection device.

Essentially, he is saying that unless a nation examines critically its present system of education and makes the necessary philosophical and budgetary adjustments to provide education for innovation, it will fall short of providing for its own high level manpower needs, and will not progress as rapidly as it should or could.

Thus, developing nations are faced with the issue of determining whether they can provide education in quantity while at the same time providing for quality in the development of their human resources.

[8] Max F. Milliken, *Restless Nations: A Study of Tensions and Development.* Dodd Mead and Company, 1962 (Reprint issued by the Council on Economic and Cultural Affairs, Inc., New York, New York.)

analytical purposes. Harbison and Myers include the following:[3]

"1. Entrepreneurial, managerial, and administrative personnel in both public and private establishments, including educational institutions.
2. Professional personnel such as scientists, engineers, architects, agronomists, doctors, veterinarians, economists, lawyers, accountants, artists, journalists, etc.
3. 'Qualified' teachers, defined as those who have had a minimum of twelve years of education themselves.
4. Sub-professional technical personnel, such as agricultural assistants, nurses, engineering assistants, technicians, senior clerks, supervisors of skilled workers, the highest level of skilled craftsmen, and skilled clerical workers such as stenographers.
5. Top ranking political leaders, labor leaders, judges, and officers of the armed forces and police."

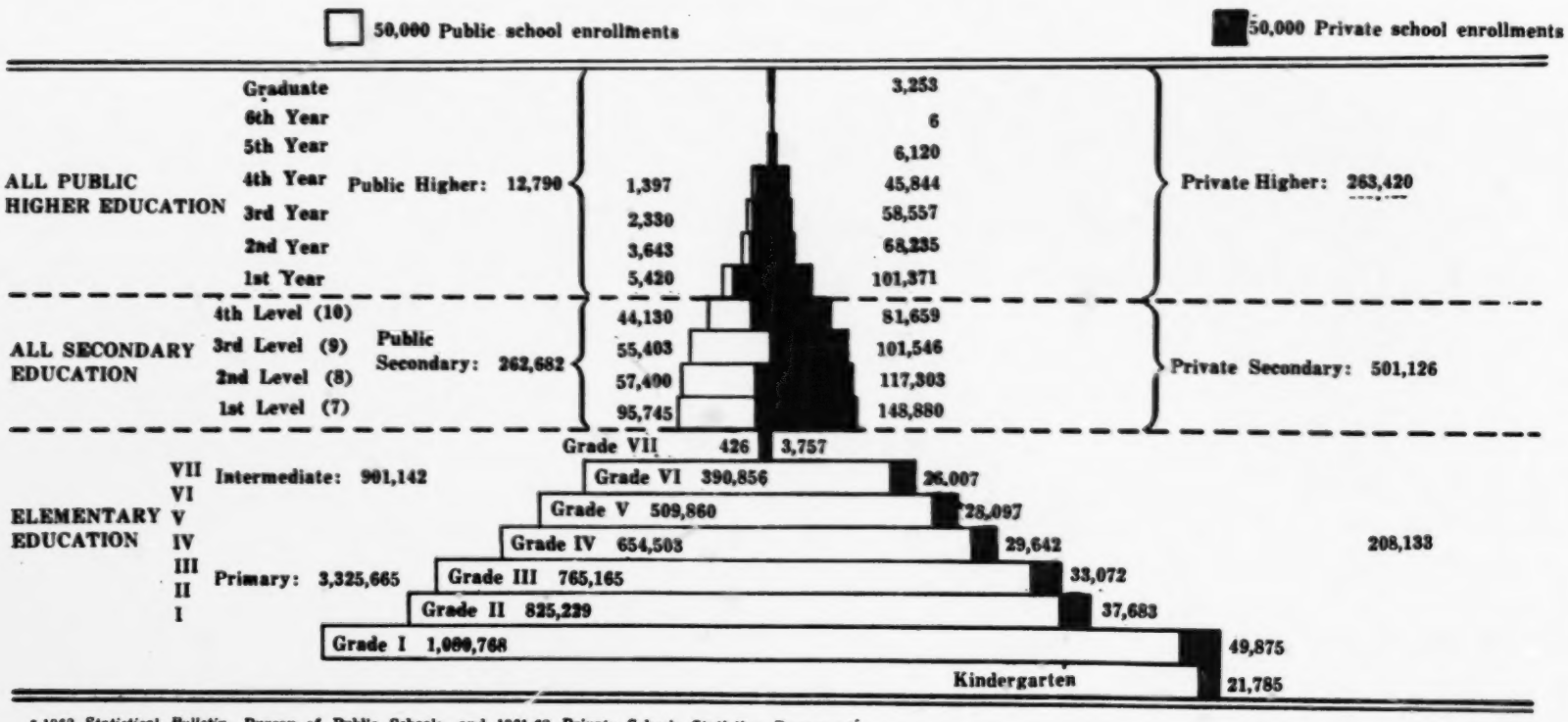
It is readily apparent that the high level manpower indicated above partially achieves its qualifications through education. As John W. Gardner, president of the Carnegie Corporation of New York puts it:[4]

> "The demand for high-talent manpower is firmly rooted in the level of technological complexity which characterizes modern life, and the complexity of modern social organization, and even more important than either of these is the rate of innovation and change in both technological and social spheres. In a world that is rocking with change we need more than anything else a high capacity for adjustment to changed circumstances, a capacity for innovation. The solutions we hit on today will be outmoded tomorrow. Only high ability and sound edu-

[3] Ibid. p. 16.
[4] John W. Gardner, *Excellence: Can We Be Equal And Excellent, Too?* Harper and Row, Publisher Incorporated, New York 1961, pp. 34-35.

CHART I

REPUBLIC OF THE PHILIPPINES
PUBLIC AND PRIVATE SCHOOL ENROLLMENTS*
1961-1962



* 1962 *Statistical Bulletin*, Bureau of Public Schools, and 1961-62 *Private Schools Statistics*, Bureau of Private Schools.

NOTE: University of the Philippines statistics not included in this chart.
Read page 2, attached, before interpreting this chart.

PART II

ECONOMICS OF EDUCATION

One definition of economics is that it is the study of scarcity. This could hold true for the economics of education. In Part I it was indicated that developing nations are faced with the problem of providing for the optimum amount of quantity education versus the provision for quality education and that the establishment of priorities for each. This is not to imply that the two are diametrically opposed. Rather, it is to suggest that with the limited funds and personnel available to developing nations, decisions have to be rendered concerning the proportional emphasis each is to receive.

The figures in Chart I indicate representative percentages of the school age population actually enrolled at three levels of education: 1st level, primary; second level, secondary; and third level, collegiate, for countries at the four different levels of development indicated by Harbison and Myers.

Each indicates a present position. The educational planner must consider the present position, short term goals, and long term goals as he attempts to determine the optimum change of the educational system. It is a reasonable assumption that each figure will, as the nations' economies evolve, tend to resemble that of the next economic level.

It will be noted from the Chart that the lesser developed countries have their greatest proportional enrollments in the first levels of schooling. Large dropouts between successive grades and large retention or failure rates tend to require correspondingly greater amounts of budgetary and personnel resources to be expended upon primary education. The fact that in most of the underdeveloped and partially developed countries, many children do not complete their elementary schooling, is an indication of the waste of resources. Functional illiteracy is as debilitating to economic growth as is total illiteracy.

The greater percentages of enrollment in the secondary and tertiary levels of the advanced countries indicate the existence of a greater pool than that which exists in less advanced countries,

from which high-level manpower can be drawn.

The graphic representations are as they are, partially because the school systems cause themselves to assume this shape, through selective retention policies and lack of secondary and tertiary opportunities, and partially because of the effects of the economy and the culture upon them.

No astute politican can long refrain from making promises of universal educational opportunities today. Therefore, we see the multiplication of efforts to provide early primary education. This tends to be low cost education in comparison with secondary and technical education, and is more directly identifiable at the grassroots level. It is obvious then, that political emphasis will be upon provision of primary education in underdeveloped countries. It must be noted also that the greater percentage of enrollment at the second and third levels in advanced countries probably also has a cause and effect relationship with the growth of the economy of those countries.

Therefore, it follows logically that to foster the rapid development of a given country's economy, efforts must be made to increase the enrollments at the higher levels of education, emphasizing increased enrollments in those curricula which tend to foster economic growth. The people and their politicians in developing countries must be made to realize the importance of secondary, technical and higher education in the scheme of economic development.

In this very generalized discussion of the problem, such specifics as relative effort have been neglected. For instance, Harbison and Myers note that for all countries the correlation between their composite index (level of placement by ratio of secondary and higher education enrollments to school age population) and the G.N.P. per capita is .888. This could be interpreted as meaning that countries tend to provide for secondary and higher education opportunities in accordance with their ability to provide. When, however, individual countries are examined, it can be seen that some make greater efforts than others. When the methods of sta-

[6] Ibid., p. 39

tistical analysis used by Harbison and Myers are applied to the Philippine situation, great paradoxes manifest themselves.

Table I shows all of the indicators used by Harbison and Myers to determine Human Resource and Economic Development. This writer has supplied the figures for the Philippines, using the same statistical sources and methods used by Harbison and Myers.

TABLE I.

INDICATORS OF HUMAN RESOURCE AND ECONOMIC DEVELOPMENT ARITHMETIC MEANS BY LEVELS OF HUMAN RESOURCE DEVELOPMENT

Indicator	*Level I* 17 *Countries*	*Level II* 21 *Countries*	*Level III* 21 *Countries*	*Level IV* 16 *Countries*	* *Philippines*
1. Composite index (secondary & higher education)	3	21	50	115	107.3
2. GNP per capita U.S. $	84	182	380	1100	121
3. Percent of population active in agriculture	83	65	52	23	53
4. Teachers (1st & 2nd levels) per 10,000 population	17	38	53	80	53
5. Scientists and engineers per 10,000 population	0.6	3	25	42	14.4
6. Physicians & dentists per 10,000 population	0.5	3	8	15	8.9
7. First level enrollment ration (unadjusted)	22	42	62	73	56.4
8. Second level enrollment ratio (adjusted)	2.7	12	27	59	25.3
9. First second level enrollment (adjusted)	20	45	66	89	64
10. Third level enrollment ratio (unadjusted)	0.15	1.6	5	11	16.4
11. Percent enrolled in scientific and technical faculties	24	28	26	28	22.5
12. Percent enrolled in humanities, F.A., and law	34	39	33	32	38
13. Public expenditures on education as a percent of national income	3.7	2.1	3.1	4.2	3.68
14. Percent in age group 5-14 inclusive	24	24	22	18	27.1

* Sources: Census of the Philippines: 1960, Statistical Handbook of the Philippines for 1962, Private School Statistics on Education 1961-62, 1962-63, Statistical Bulletin, 1962, Bureau of Public Schools

Of immediate importance is the fact that the Philippines has achieved a position comparable to the most advanced countries of the world in respect to the proportion of the age group presently receiving secondary and higher education, while her GNP per capita ranks among that of some of the underdeveloped nations.

Either the Philippines has discovered the secret of providing a great amount of education for a very low cost, or finds itself sacrificing quality for quantity.

It must be realized that the Philippines like many other countries was occupied by an invading army during WWII (with a resulting low birth rate in those years) and that the estimated population base from which college age enrollment proportions were figured (in 1964) is a lower figure than might be expected. This helps to explain the higher percentage figure for item 10.

This writer views the situation presented by the above statistics with concern:

1. The Philippines has one of the highest percentages of school age population to the total population. Twenty-seven percent of the total population is in the 5-14 age group.
2. The Philippines has one of the highest percentages of enrollment at the higher levels of education for the age group involved. This indicates the great drive for higher education in the country.
3. The Philippines has one of the lowest G.N.P. per capita figures and a percentage of agricultural population comparable to that of the semi-advanced countries. Taken with the low G.N.P., which is usually associated with a high percentage of population in agriculture, this fact could mean that there is a great deal of inefficient agricultural enterprise, a great amount of unemployment in the country, that not all factors are being used to determine G.N.P., and that as people leave the agriculture sector their basic earnings do not rise to the levels expected for semi-advanced countries. If the latter is the case, it could be surmissed that economic motivations to enter trades and technical vocations are insufficient, or that there are insufficient employment opportunities available. The young Filipino, then, determines that the wage structure of industry for graduates of trade and technical schools is not great enough to outweigh the gamble of acquiring a liberal education and attempting to secure a white collar position, which traditionally, as in many

Asian countries, is equated with employment in the government.

These factors, considered with the expenditures on educations as a percentage of national income, tend to indicate that the country is producing more highly educated manpower than its economy can presently afford and absorb. This is particularly true in the case of the graduates from liberal arts faculties, schools of law, and the fine arts. Thus, as in many countries, the Philippines produces an over-abundance of liberally educated, but under-employed college graduates, who frequently delay employment until advanced ages, or accept menial positions at low salaries, merely to stay alive. The alternative is unemployment in either case a waste of human and material resources.

In this situation, a type of reverse decadence sets in, and those who should be the leaders in the development of the nation are frequently the greatest contributors to its decay.

Perhaps the greatest single contributor to this dilemma is the private university. As is well chronicled, the Philippines charters private colleges in the same manner as it does corporations. These colleges, operated for profit as they are, naturally desire to pay their stockholders a return on their investment. This must be accomplished at the expense of the education of the students.

Large groups are admitted annually on a relatively non-selective basis, with various selective procedures being applied throughtout their academic careers. The group that leaves the universities each year, either as graduates or as failures, or for economic reasons, tends not to return to the provinces, but prefers to remain in the country's capital cities. This creates the imbalance of a relatively highly educated group of position seekers in the nation's capital city, while the provinces lack high-level manpower.

It is perhaps at this point that the admonitions of Milliken and Gardner need to be re-asserted. Unless there can be education for innovation—pre-planned after the very necessary determination of goals and priorities—the Philippines will, at best, remain stagnant in its development. At worst, it will be eroded from above and in this state will be easy prey to hungry neighbors.

PART III

CONTRIBUTIONS OF EDUCATION TO DEVELOPMENT

Elementary Education

The educational system has made some contribution to economic development in the country, but it could certainly contribute more.

As mentioned in Part I, universal education at the primary levels represents the largest single item of expenditure in the National Budget. A great part of this investment is wasted each year through students drop-outs or through academic failure which causes both students and teachers to repeat a year's effort. An analysis of this latter situation is made by the author in another source.[1] Thus, from a purely economic point of view the universal education program at the primary level represents a drain on the economy in excess of its contribution.

Secondary Education

The highly selective progression through the elementary grades tends to defeat the purpose of providing a broad base at the sixth grade level from which secondary school population can be drawn. (See Chart II, following). And, it is at the secondary level where the education system has the greatest potential for assisting the economic growth of a country. It is from the secondary school graduates that the great army of machinists, surveyors, draftsmen, shiprights, carpenters, plumbers, electricians, nurses, secretaries, and heavy equipment operators must be recruited. The technological forces of the modern world require this level of development.

With the assistance of the International Corporation Administration of the U.S. Government, a system of public trade and vocational secondary schools was rehabilitated and expanded in the 1950s. In addition to the academic high schools in chartered cities these schools represent the bulk of public support to second-

[1] R. W. Smail, "A Summary and Analysis of School Enrollment in the Republic of the Philippines, With Recommendations." USAID/Manila, 1964 (mimeographed).

ary education in the Republic. As has been noted by Harbison, elsewhere, while one imperative for economic development is a high rate of human capital formation in the form of skilled people and institutions, this is prevented in part of the resistance to change evidenced by the large enrollments in traditional academic programs, the family system, and traditional ethical values. The graduate figures in Table II below indicate that the greatest percentage (94%) of secondary students are graduated from academic general courses, while only 6% graduated from vocational schools.

CHART II

COMPARISON OF PHILIPPINE SCHOOL ENROLLMENTS
WITH AVERAGE ENROLLMENTS IN GROUPINGS OF
COUNTRIES AT FOUR LEVELS OF ECONOMIC DEVELOPMENT

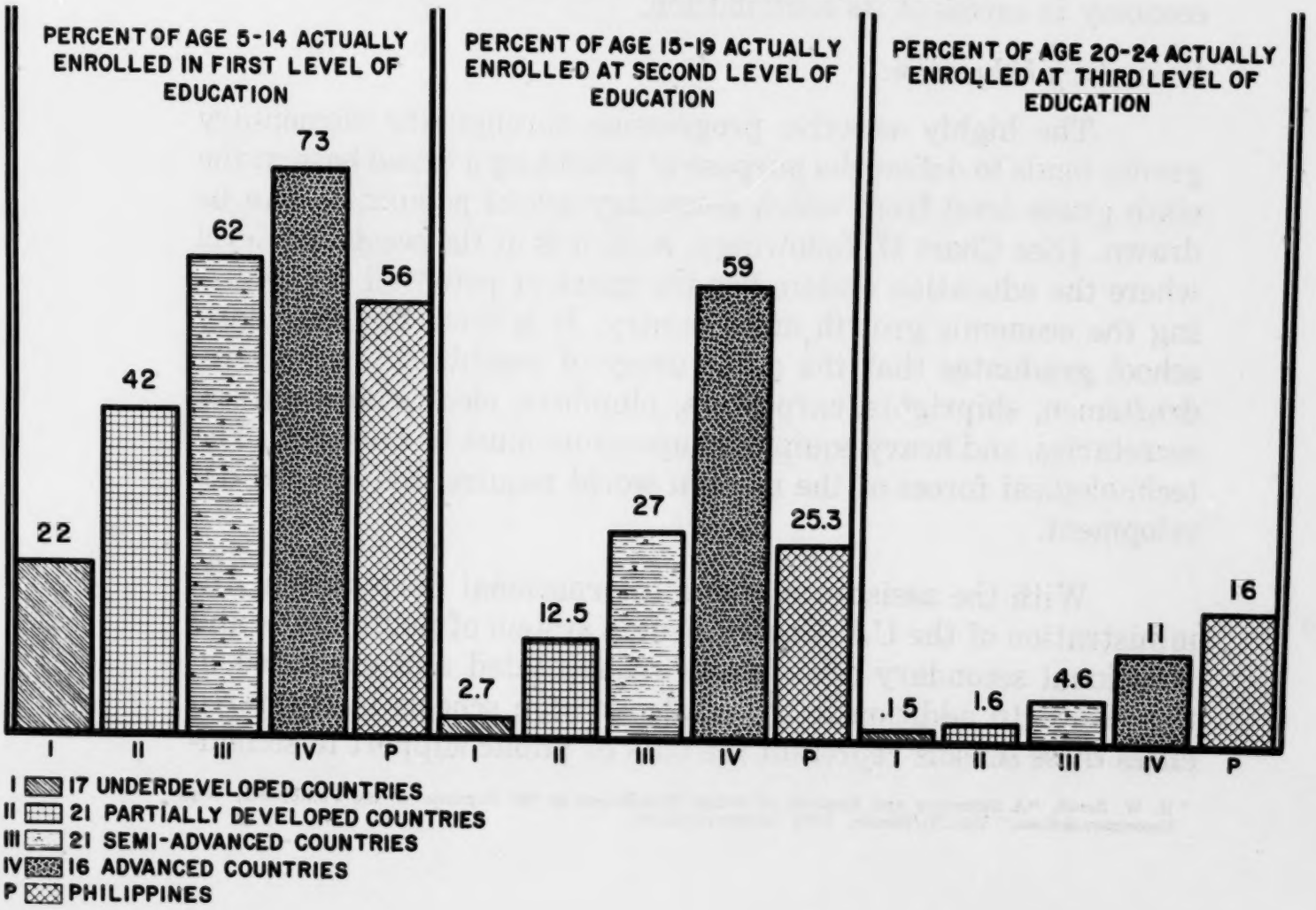


Table II below depicts the graduates by curriculum for both public and private schools for 1961-62.

TABLE II

NUMBER OF GRADUATES FROM THE SECONDARY LEVEL OF EDUCATION BY CURRICULUM, 1961-62

Curriculum	*Public Schools*	*Private Schools*	*Total*
General	38,578	72,942	111,520
Trade	3,479		3,479
Agriculture	1,523		1,523
Fisheries	283		283
Special (Deaf & Blind)	8		8
Short Term Vocational Courses	867		867
	44,738	72,942	117,680

Table II above indicates that trade and vocational graduates represent 6% of the graduating classes of public schools. The percentage figures are unavailable for private schools. While some demand exists for trade and vocational education in the private sector, by and large, the greatest private school enrollments in vocational education are found in the post secondary "special vocational classification".

Part of this problem is perhaps caused by the general scarcity and wide geographical dispersion of the public trade and vocational schools, and the resulting requirement of boarding and lodging at the schools. The low per capita income prevents many potential students from attending these schools due to their inability to pay for these services, and forces them to attend private or public schools nearer their homes which provide less expensive schooling. In addition, the desire for a college education causes many students to select general or academic secondary schools. This, perhaps, points out the need for provinding secondary schools with broader curricula and more freedom for exploration of interests. This provision would assist in meeting Milliken's suggestion to use the schools as a search and selection device, and would remove the stigma presently attached to the purely vocational secondary school.

Table III below indicates the number and type of secondary schools in the Republic.

TABLE III

NUMBER AND TYPE OF SECONDARY SCHOOLS 1961-62 School Year

Type	*NUMBER*		
	Public	*Private*	*Total*
General Secondary	408	1,435	1,843
UNESCO Training Center	1		1
Agricultural	76	*	76
Trade & Industrial	70	*	70
Fishery	24	*	24
	579	1,435	2,014

* Figures not available

By comparison with Table II, it can be noted that a total of 2,014 schools graduated 117,680 students in 1962. This produced an average graduating class of 58 students per school. Thus, a part of the problem of financing education becomes apparent: many schools do not have sufficient enrollments to warrant the facilities necessary for an adequate education.

Table IV indicates the average number of graduates per school b ytype of school for 1961-62.

TABLE IV

AVERAGE NUMBER OF GRADUATES PER SECONDARY SCHOOL BY TYPE 1961-1962

Type of School	*Average Number of Graduates*	
	Public	*Private*
General	94	50
Agriculture	47	
Trade & Industrial	22	
Fisheries	12	
Special Vocational		

The provision of facilities to produce annually the needed graduates from secondary schools is very costly, particularly in the case of trade, industrial, and agriculture schools. This is also true for the science portions of the general education curriculum. It would appear from the average sizes of the graduating classes

that efforts could be made to consolidate certain of the schools so as to produce graduating classes of larger sizes or to provide for increased amounts of general education in specialized schools. This would have the effect of preventing duplication of costly facilities, and providing a better educational program. Studies of optimum enrollments in the U.S. indicate that school districts producing around 200-500 graduates a year represent an efficient utilization of the school facilities and of the district's tax dollar. (Of course, individual cases differ due to transportation problems, school district population, and economic support.) From the figures above, however, it can be assumed that on the average the facilities provided by the Philippine schools in the way of laboratories, shops, and classrooms are not being economically used.

The fisheries schools are a relatively new and untested enterprise. Therefore, their graduates represent largely transfer students. Thus, the average figures do not give a true picture of the total (quantity) potential of these schools.

Summary of Secondary School Contribution

In 1962 the public and private secondary schools of the Republic graduated a total 117,680 students of which 2,014 or roughly 6% were from vocational curricula. These graduates, representing 1.1% of the total school age population (5-19), represent the annual potential supply of high level manpower for the country's development. As enrollment figures for first year college students in 1962-63 were 148,241, it would appear that few high school graduates seek employment in industry, but prefer to go on to higher education.

While this high enrollment in college may be admirable, it raises the question of where industry will recruit its manpower.

Higher Education

Higher education in the Philippines has made its contribution to the development of the country. As indicated by Table I in Chapter II, the tertiary levels of education have already produced 53 teachers per 10,000 population, 14.4 scientists and engineers per

10,000, 8.9 physicians and dentists per 10,000, and are currently enrolling 22.5 percent of their students in scientific and technical faculties. Thus, the Republic of the Philippines finds itself in a favorable position in comparison with many countries of the world in respect to total output of high level manpower. For example, as noted in Table I, to achieve the present average level of the indicators of Economic Development of the Group III, countries, the Philippines would have to provide for the following changes in its educated population (on basis of 1962-63 population):

1. The production of teachers should remain constant. In other words, the elementary field, at least, is saturated. Some shortages might exist in secondary education, particularly in math and sciences.

2. An increase of 10.6 scientists and engineers per 10,000 population or a total increase of 31,000.

3. The Philippines actually has an over-abundance of 2,641 people trained as physicians and dentists. However, because of geographical distribution, inequalities exist between the provinces and the cities. In addition, many doctors and dentists do not maintain a full practice but seek other avenues of employment, such as politics. Therefore, the current production of doctors and dentists would probably be adequate to keep pace with the population growth for some time. Attention could be concentrated upon improving the quality of those being graduated.

4. The Philippines would need to increase the percentages of its students enrolled in science and technical faculties by 3.5% to achieve the average enrollment levels of Level III countries.

5. At the same time a reduction of 5% of those students pursuing an education in the humanities, fine arts, and law would need to be made.

6. We have been comparing the Philippines with Level III countries, but in economic terms the Philippines GNP would have to be increased by $259 per capita to reach this level. Such an increase would permit a reduction in the percentage of public expenditures devoted to education.

7. Finally, the comparative statistics would indicate that

the people of the Philippines are educating a much higher percentage of the college age group than the average Level III country. It is perhaps within the extra 11% that the manpower resources for rapid economic development will be found.

At the conclusion of Chapter II, it was suggested that reassessment and planning are necessary to promote the fullest utilization of higher education in the development of the country's economy.

STRATEGY FOR DEVELOPMENT

The development of a nation proceeds to the degree that all of its resources—material, natural, and human,—can be made to work together. If any are lacking or in short supply the progress of development suffers proportionately.

By definition, "strategy" is the art of science of employing available force to secure objectives. It therefore stands obvious that before a strategy of manpower development can be developed by the Republic of the Philippines some assessment of its objectives for development needs to be made and to be related to its present manpower resource. It can probably be said that the major economic objectives of the Philippine government are centered in two broad areas—rapid and massive industrial growth, and the expansion of agricultural productivity. What, then, are the implications for the evolvement of a national strategy for human resources development, within the political sector, the industrial sector, and the educational sector.

In evolving a strategy for manpower development within a democracy, certain broad questions might well be considered:

1. What are the requirements properly to be placed upon the educational sector to assist in the rapid and massive industrial development?
   - *a.* What expansions or re-directions are necessary in education in order to provide for the needs of industry?
   - *b.* What are the needed emphases of curriculum organization in providing industry's needed manpower?

c. How can the schools provide for the talent search and selection, proposed by Milliken?

d. Is it necessary to disperse educational opportunity more evenly throughout the country? If so, are there regional differences in educational programming that may be necessary?

e. What priorities should be given to increasing the proportion of secondary school graduates moving to industry, versus continuance on to higher education?

f. Finally, where does the educational sector get the information necessary to make it responsive to the country's manpower needs?

2. What requirements or obligations does higher education face in assisting in industrial development?

a. What role should the undergraduate institution play in providing industry's manpower needs? The graduate level institution?

b. Are current proportions of enrollment adequate to provide needed technical and scientific workers?

c. Are faculties and students sufficiently aware of industry's needs for specific types of manpower? Whose responsibility should it be to analyze the labor market and to disseminate information about the areas of need to the producers of human capital?

d. Is there a need for university-government-industry cooperation in establishing priorities and determining areas of concentration?

e. What steps, if any, need to be taken to establish channels of communication between the sectors mentioned above?

f. Is there a need for the government to offer incentives to universities to provide the needed proportions of scientific and professional workers?

g. Finally, decisions about quality versus quantity, or perhaps, quality concurrent with quantity, need to be

made throughout the educational system. Is it possible to provide for both? If not, what studies, decisions and priorities need to be established to ensure that the total educational sector is making its maximum contribution to the growth of the nation?

3. What are the areas of concern for human resources development outside the formal education system?

a. What incentives may be necessary on the part of industry to motivate the educational sector to produce the types and amounts of needed manpower?

b. What informational services need to be developed to inform schools and individuals of industry needs?

c. What responsibilities do industry and the voluntary associations such as labor unions have for apprenticeship or in-service training programs?

d. What possibilities exist in re-training programs for drop-outs, unemployed, or under-employed workers?

e. Finally, what contributions can governmental agencies, such as the military, make in creating a pool of trained manpower?

4. What are the implications for the Agricultural Sector in the broad question of manpower development?

a. What incentives may be necessary to promote a broader dispersion of technical assistance to rural areas?

b. What types and numbers of technically educated personnel are necessary to promote increases in productivity?

c. What are the priority programs necessary to promote improvements in rural life? How does the educational sector fit into these programs? i.e. What levels and kinds of education are necessary for agricultural workers and their families to achieve the greatest gains from technical assistance mentioned above?

5. In the face of a rapidly expanding population;

a. What priorities need to be established in regard to universal education and education for economic productivity?

b. What decisions need be made in regard to financing education, providing needed facilities, and to ensuring a professionally trained teaching force?

6. What types of experiences can be efficiently developed by:

a. the educational sector alone?

b. the industrial/agricultural sector alone?

7. What types of experiences can be started by the educational sector and followed through or reinforced by the industrial/agricultural sector?

These questions have to be answered to avoid needless duplication, overlapping, and thus, waste of time, in teaching student skills which can be better learned and developed on the job, or in service, rather than on the pre-service level.

This paper has attempted to analyze the present position of the Republic of the Philippines in respect to the contributions of education to manpower development, and to suggest areas of concern to strategy planners. The actual development of specific strategies will require the cooperative efforts of many agencies. In the final analysis, it seems apparent that a primary need exists for a top-level manpower assessment agency or a presidential commission to gather and study data, and to suggest policy and areas of responsibility to cooperating agencies, and to effect an overall coordination of the national human resource development. It appears that a second commission also needs to be created, composed of private citizens of the highest levels of prestige and influence, to interpret national policy into educational policy which would be acceptable and feasible to all sectors of the educational *milieu*.

Thus, democratic principles of sensitivity to and receptivity of public opinion may be ensured in the process of developing the nation through developing its human resources.

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